

Appl No.: 10/606,551

Atty. Dkt.: UCF-365

REMARKS/ARGUMENTS

Favorable consideration of this application is respectfully requested. Applicant has twice amended claims 1, 19 and 28. Favorable reconsideration of this application is, consequently, earnestly solicited in view of the following remarks. Applicant thanks Examiner Williams for the telephone interview on March 2, 2006 to discuss upconversion from near infrared light to visible light in comparison with downconversion from ultra-violet light to visible light.

Claim Rejection – 35 U.S.C. §102(b)

Claims 1-8, 14-23 and 28-38 were rejected under 35 U.S.C. §102(b) as being anticipated by U. S. Patent No. 6,812,500 B2 issued to Reeh et al. (Reeh).

Examiner alleges that Reeh teaches “a method of forming visible light sources with upconversion materials”. Applicant respectfully disagrees. Reeh does not teach upconversion. Upconversion is photoexcitation at a wavelength in the near infrared range followed by luminescence at a shorter wavelength in the visible range. Reeh teaches downconverting uv, blue or green emitting diodes to visible wavelengths using some sort of phosphor. Reeh starts with a high frequency light and makes it into a lower frequency light, a downconversion of the high frequency light to a lower frequency light.

Claims 1, 19 and 28 have been previously amended to clarify that the near infrared light is upconverted from a lower frequency to a higher frequency and have been presently amended to clarify that the maximum amount of light is upconverted. Reeh does not teach upconversion to a higher frequency. For these reasons, Applicant believes

Appl No.: 10/606,551

Atty. Dkt.: UCF-365

that amended claims 1, 19 and 28 overcome the 35 U.S.C. 102(b) rejection. Thus, removal of the rejection is requested.

In regards to claims 2 and 3, Reeh does not teach using near infrared light emitted from a laser diode. Reeh teaches "a semiconductor body emits radiation in the ultraviolet, blue or green spectral regions" (Abstract). For this reason and the reason provided in regard to claim 1, Application believes that claims 2 and 3 are allowable and requests removal of the rejection.

In regards to claims 4, Examiner alleges that Reeh teaches upconversion material encapsulated in p-PMMA. Reeh does not teach use of p-PMMA for upconversion. Reeh teaches use of PMMA (col. 6 line 60) or PMMA treated with organic dye molecules (col. 6 line 62) for downconversion. For this reason, and the reasons provided in regard to claim 1, Applicant believes that claim 4 is allowable over Reeh and requests removal of the rejection.

In regard to claims 5-8, Examiner alleges that Reeh teaches red, green, blue and white, respectively, visible light emission. While Reeh teaches red, green, blue and white visible light emission, Reeh teaches using down conversion to produce the visible light emission. Claims 5-8 depend from base claim 1 which recites upconversion to a higher frequency visible light emission. For this reason, Application believes that claims 5-8 are allowable and requests removal of the rejection.

In regard to claim 19, Applicant has amended claim 19 to clarify that the upconversion step recites up converting from a lower frequency to a higher frequency and that the maximum amount of light is upconverted. Reeh does not teach upconversion

Appl No.: 10/606,551

Atty. Dkt.: UCF-365

to a higher frequency. For this reason, Applicant believes that amended claim 19 is patentable over Reeh. Thus, Applicant requests removal of the rejection.

In regard to claims 20-23, while Reeh teaches red, green, blue and white visible light emission, Reeh teaches using downconversion to produce the visible light emission. Claims 20-23 depend from base claim 19 which recites upconversion to a higher frequency visible light emission. For this reason, Applicant believes that claims 20-23 are allowable and requests removal of the rejection.

In regard to claim 28 Applicant has amended claim 28 to clarify that the up conversion step recites upconverting from a lower frequency to a higher frequency and that the maximum amount of light is upconverted. Reeh does not teach upconversion to a higher frequency. For this reason, Applicant believes that amended claim 28 is patentable over Reeh. Thus, Applicant requests removal of the rejection.

In regard to claims 29-34, while Reeh teaches use of a diode laser as a light source, rare earth doped crystalline host particles mixed with encapsulation materials, and a visible light including red, green, blue and white, respectively, Reeh does not teach upconversion. For the reasons provided in regard to claims 1 and 19, Applicant believes that claims 29-34 are allowable over Reeh and requests removal of the rejection.

Claim Rejection - 35 U.S.C. §103(a)

Claims 9-13 and 24-27 were rejected under 35 U.S.C. §103(a) as being unpatentable over Reeh in view of Zarling et al. U. S. Patent No. 5,698,397 (Zarling).

Claims 9-13 and 24-27 depend from independent claims 1 and 19, respectively. While Zarling teaches the use phosphor compositions for the purpose of improving the

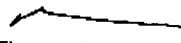
Appl No.: 10/606,551

Atty. Dkt.: UCF-365

brightness of a lamp, Rceh in combination with Zarling fails to teach all of the limitations in amended claims 1 and 19. For the reasons provided in regard to rejection of claims 1 and 19 under section 102(b), Applicant believes that claims 9-13 and 24-27 are allowable and requests removal of the rejection.

In view of the foregoing considerations, it is respectfully urged that claims 1-13 and 19-34 be allowed. Such action is respectfully requested. If the Examiner believes that an interview would be helpful, the Examiner is requested to contact the attorney at the below listed number.

Respectfully Submitted;



Brian S. Steinberger
Registration No. 36,423
101 Brevard Avenue
Cocoa, Florida 32922
Telephone: (321) 633-5080

Date

3/3/06